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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,561	06/15/2006	Ilias Manettas	2003P00533WOUS	4717

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EXAMINER

COX, ALEXIS K

ART UNIT	PAPER NUMBER
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3744

NOTIFICATION DATE	DELIVERY MODE
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ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/551,561	Applicant(s) MANETTAS ET AL.	
	Examiner ALEXIS K. COX	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 10-12, 14, 17, and 20-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Tilmanis (US Patent No. 3,839,878).

Regarding claims 10, 17, 21, and 22, Tilmanis discloses a refrigeration device, comprising a thermally insulating housing (10, see column 3 line 53, see also figure 1) enclosing an inner chamber (14, see column 3 lines 54-55) and an evaporator arranged in said housing (18, see column 3 lines 59-60) separated from the inner chamber; the evaporator including a surface where an ice layer forms during operation (see column 5 lines 10-14); a pair of temperature sensors (36, 38, see column 4 line 10) placed in the vicinity of the evaporator such that for a given thickness of the ice layer only one of the temperature sensors is embedded in the ice layer (see column 4 lines 17-19); a heating device for heating the evaporator (see column 3 lines 63-65); and a monitoring circuit connected to the pair of temperature sensors (see column 4 lines 30-41) which determines the difference between the temperature values detected by the pair of temperature sensors and activates the heating device when the temperature difference exceeds a predetermined value (see column 4 lines 42-47).

Regarding claim 11, the refrigeration device of Tilmanis further has a first sensor arranged directly on the surface of the evaporator (36, see column 4 lines 17-18) and the second temperature sensor is arranged at a distance from the surface (38, see column 4 lines 18-19).

Regarding claim 12, the refrigeration device of Tilmanis discloses a channel communicating with the inner chamber with the evaporator arranged in the channel, as without such a channel the refrigeration device would not keep the inner chamber cold.

Regarding claim 14, figure 1 discloses the refrigeration device of Tilmanis to have the evaporator arranged in the housing separated from the inner chamber by an insulating partition, and there must be at least one channel through the partition communicating with the inner chamber and the evaporator in order to keep the inner chamber cold.

Regarding claim 20, the evaporator is heated when it is decided that a defrosting procedure is necessary (26, see column 3 lines 63-65 and column 4 lines 1-3).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
6. Claims 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tilmanis (US Patent No. 3,839,878).

Regarding claims 13 and 15, it is noted that Tilmanis does not explicitly disclose the second temperature sensor to be arranged on an output of the channel terminating in the inner chamber. However, it would have been an obvious mechanical expedient to one of ordinary skill in the art at the time of the invention to rearrange the existing parts to place the second temperature sensor on an output of the channel terminating in the inner chamber in order to ensure that the temperature sensed by the second temperature sensor is not rendered inaccurate by proximity to frozen items in the freezer. Further, this placement is not contrary to the disclosed location of the second temperature sensor, as the output of the channel communicating with the inner chamber

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may be considered to be the border between the channel and the frozen food compartment.

7. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tilmanis (US Patent No. 3,839,878) in view of Davis et al (US Patent Application Publication No. 2001/0054292).

Regarding claims 18 and 19, it is noted that the system of Tilmanis is not explicitly disclosed to perform a preset delay after the evaporator is started up before beginning the defrost evaluation procedure, or to perform the defrost evaluation procedure if the speed of change of temperature on at least one of or both sensors has fallen below a predetermined limit value. However, the system of Davis et al comprises a microprocessor controller which receives and interprets sensor signals (see paragraph [0016]), and it would have been obvious to one of ordinary skill in the art at the time of the invention to implement such programming in the controller in order to prevent excessive defrosting, which is inefficient, and also to prevent inadequate defrosting, which is also inefficient.

8. Claims 13, 15, 16, and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tilmanis (US Patent No. 3,839,878) in view of Hansen (US Patent No. 4,345,441).

Regarding claims 13 and 15, it is noted that Tilmanis does not explicitly disclose the second temperature sensor to be arranged on an output of the channel terminating in the inner chamber. Hansen explicitly teaches that placement of a second temperature sensor in the freezer compartment is known in the art, and that it is an improvement to

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not locate the second temperature sensor in the inner chamber, and Hansen discloses but does not require juxtaposition of the first and second temperature sensors (see column 2 lines 13-14 and column 1 lines 31-39). The placement of the second temperature sensor in the steady airflow provided by the outlet of the air channel of the system of Tilmanis and Hansen would therefore have been obvious to one of ordinary skill in the art at the time of the invention in order to provide continuous airflow without requiring the evaporator to be upright, thereby permitting a more flexible use of space.

Regarding claims 16 and 24, it is noted that Tilmanis does not explicitly disclose the use of a single thermally insulating carrier attached to the evaporator surface with the first and second temperature sensors arranged directly adjacent the evaporator and at a distance from the evaporator. Hansen explicitly discloses a defroster with a carrier (9, see figure 5) which holds one sensor directly on the evaporator surface and the other further away (T_e , T_r , see column 4 lines 20-24; see also column 2 lines 1-12). As the system of Hansen was designed to be used in a refrigerator, such as that of Tilmanis, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the convenient carrier of Hansen in the system of Tilmanis in order to use the relative temperature sensor inputs without potential inaccuracies caused by the closeness of the second sensor to the frozen food in the interior space.

Regarding claims 23 and 25, it is noted that Tilmanis does not disclose positioning the second temperature sensor adjacent a ventilator positioned between the evaporator and the inner chamber. Hansen explicitly discloses the advisability of having the evaporator vertical to encourage air flow across the temperature sensors (see

column 1 lines 65-68). It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to implement the carrier on Hansen in the system of Tilmanis adjacent a ventilator in order to pursue this same goal of continuous air flow to enable more reliable sensor operation.

Response to Arguments

9. Regarding claim 10, the applicant argues on page 9 that “in the vicinity” does not include the frozen food storage chamber.

The examiner respectfully disagrees. The first definition provided in the Oxford English Dictionary of “vicinity” defines it as “being near in space.” It is the examiner’s duty to give the claims the broadest reasonable interpretation. In view of the above definition, to include the frozen food storage chamber as in the “vicinity” of the evaporator is reasonable.

Further, the sensors of Tilmanis meet the limitations of claim 17 as claimed; arguing that the word “vicinity” in claim 10 combined with the placement such that one sensor is covered in ice and the other is not renders both claims allowable completely ignores this fact.

Regarding the dependent claims, these claims are not allowable at least by virtue of their dependency upon non-allowable independent claims.

Regarding claims 13 and 15, the applicant argues that the proposed modification is “not suggested in Tilmanis.” However, the modification does not need to be suggested by Tilmanis; it is an obvious mechanical expedient, making it obvious by

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virtue of general knowledge available to one of ordinary skill in the art at the time of the invention.

The applicant appears to attempt to argue on page 10 that Tilmanis teaches away from moving thermistor 38, because Tilmanis explicitly discloses sensing the temperature of a storage space of the refrigerator. However, it is well known in the art to sense injection temperature in order to determine the temperature of a space being conditioned; accordingly, this argument is unpersuasive.

It is further argued on page 10 that because changing the position of thermistor 38 would require circuit modifications and programming modifications neither suggested nor disclosed in Tilmanis. Again, the simple moving of a sensor from one location to another was sufficiently well known in the art at the time of the invention to render this argument unpersuasive.

On page 11, it is argued that Hansen does not reference not locating a second temperature sensor in the inner chamber to be an advantage.

Strictly speaking, Hansen states that it is "particularly favorable" to place the second temperature sensor on the surface of the evaporator (see column 2 lines 1-3), instead of in the inner space (column 1 lines 31-42), as was known in the prior art to have problems Hansen explicitly seeks to avoid. Although this does not use the word "advantageous" or any variant with the same root, the meaning is clearly equivalent.

On page 11 it is further argued that "closely juxtaposed" causes Hansen to lack the claimed sensor element being arranged on an output of a channel terminating in the inner chamber.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

It is the combination of references, not Hansen alone, which must disclose the second temperature sensor to be at the output of a channel which terminates with the inner chamber. Again, as explicitly argued above, monitoring of injection temperature is and old and well known change in the art. Further, as may be noted from both the previous action and this one, while Hansen discloses juxtaposition, *it does not require it*; the juxtaposed arrangement may happen, but does not have to.

Regarding claim 16, it is argued that Hansen does not disclose the sensor to be held directly on the evaporator surface.

The applicant's attention is respectfully called to column 2, lines 34-38 of Hansen. A contact face which abuts the evaporator and has a depression for receiving the sensor clearly has the sensor contacting the evaporator. Alternately, the applicant may view figure 2, which clearly discloses a sensor contacting the evaporator directly.

Regarding claim 24, the applicant repeats the argument concerning claim 16; again, it is respectfully suggested the sensors of Hansen are clearly in contact with the evaporator, as can be seen from figures 3-6, most especially figures 5 and 6, which clearly disclose sensor 17 to be contacting the evaporator while sensor 16 is not.

Claim 26 is not allowable, as it contains similar subject matter to the other claims, for the reasons discussed above.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Aoki (US Patent Application Publication No. 2009/0266093) discloses a refrigerating system with appropriately sensed defrost control.

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEXIS K. COX whose telephone number is (571)270-5530. The examiner can normally be reached on Monday through Thursday 9:00a.m. to 6:30p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frantz Jules or Cheryl Tyler can be reached on 571-272-6681. The fax

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phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AKC/

/Frantz F. Jules/

Supervisory Patent Examiner, Art Unit 3744